



IMSAI®

The Standard of Excellence
In Microcomputer Systems

Short Form Catalog

Fall 1977



• VDP-80/1000

Single cabinet computer/terminal/mass-storage system. 12" CRT. Dual floppy disks, single or double density. 32K RAM memory expandable to 196K. 8085 MPU. ASCII keyboard with 10 pad numeric keyboard and cursor controls. Supports hard copy printers. DOS, Assembler and Commercial/Scientific BASIC software available. Serial I/O (RS-232 and bisynch) and parallel output ports standard.

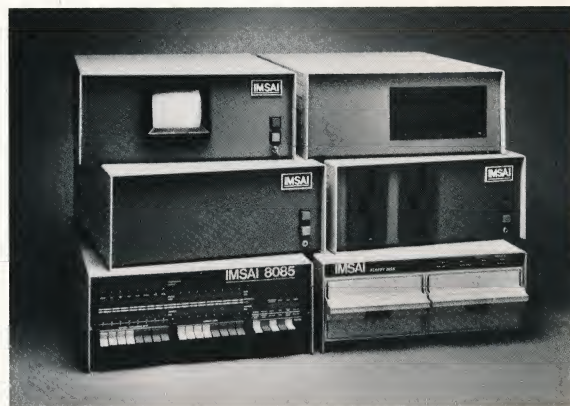
• PCS-80

Integrated component system providing wide range of CPU and peripheral options which can be integrated into a single cabinet. Master cabinet (DHMO) allows vertical stacking of 2 component subsystem chassis into single unit.

Computing Units

I-8080 (PCS-80/10). 8080-based mainframe (See Single Board Central Processors, MPU-A). 28 amp power supply. 22-slot mother board. Programmer front panel (CP-A).

I-8085 (PCS-80/14). 8085-based mainframe (See Single Board Central Processors, MPU-B). 28 amp power supply. 22-slot mother board. Programmer front panel.



I-8085B (PCS-80/15). Same as I-8085 except programmer front panel is replaced by operator's front panel (contains only key-lock, reset and interrupt switches).

Peripheral Units

Double Floppy Unit, FDC 2-1&2 (PCS-80/21 & 22). Single or dual drive. IBM 3741 recording format. 1/4 megabyte storage per drive.

Dual Floppy Disk Drive (PCS-80/25A & B). Dual floppy disk drive available in single and double density. 1 megabyte storage per dual double density drive. Controller will support additional dual double density drive and/or up to 3 mini-floppies, single or double density.

Combined Units

Video Computing Unit (PCS-80/30). 8085-based CPU. 10-slot mother board. 8 amp power supply. Video interface and 5" CRT. Includes Intelligent Keyboard (IKB-1).

Mini-floppy Computing Unit (PCS-80/35). Same as PCS-80/30 except CRT is replaced by two Shugart minifloppies.

Miscellaneous Hardware Options

RM. Rack mount option for standard 19" RETMA cabinet.

EXP-22. 22-slot mother board.

EXPM. 100 pin edge connector and card guides connects printed circuit board to mother board.

CP-A (Programmer front panel). 16 address/data switches. 6 control function switches. LED indicators for address, data bus, status, and program output.

PS-8. 8 amp power supply.

PS-28. 28 amp power supply.

FM. Cooling-fan recommended for chassis with 5 or more printed circuit boards.

DC. Table top cover for chassis provides dust protection and cool air circulation.

1. Video Data Processor (VDP-80).

2. Personal Computing System with CRT (PCS-80/30), dual floppy disks (PCS-80/25A), Intelligent Keyboard (IKB-1) and DHMO mounting options.

3. PCS-80 system—representative PCS-80 components.

8048 Control Computer. Programmable computer and process controller. 22 I/O lines. 5 heavy duty relays. TTY and cassette interface. 24 pad hexadecimal keyboard. 9 digit LED hex display. Requires only power supply (PS-3A) to run.

MPU-A. The industry standard. 8080 based CPU. S-100 compatible.

MPU-B. 8085 based CPU. 8080 software and S-100 compatible. 50% faster. Interrupts, serial and parallel I/O. ROM monitor firmware. 256 byte RAM memory. Requires only power supply and terminal to run.

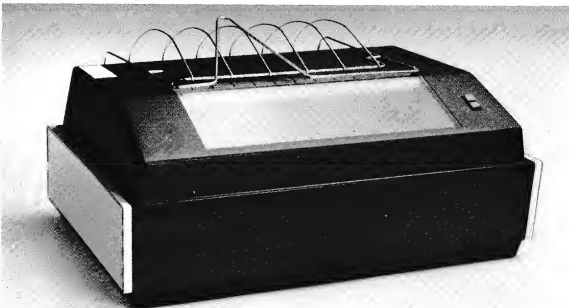


4. 8048 Programmable Computer and Process Controller.

18.



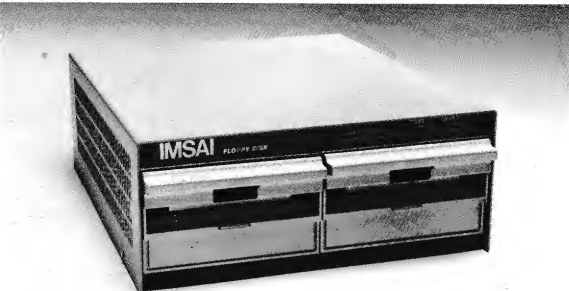
19.



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21.



Printers

PTR-45A Serial Printer. Daisy-wheel character printer. 45 cps. 132 column.

PTR-45A-TF. Printer PTR-45A with tractor feed option.

PTR-300A Line Printer. Impact line printer. 300 lpm. 80 columns. Tractor feed. Solid characters.



22.

PTR-300B Line Printer. Impact line printer, 300 lpm. 132 columns. Tractor feed. Solid characters.

AP-44 Mini Line Printer. Dot matrix printer. 44 column. 55 cps. Uses standard paper. Requires parallel interface.

Plotters

PLOT-1. B-size interactive digital plotter RS-232C or GPIB interface (requires SIO 2-1, SIO 2-2, or MIO board plus one cable A; or MPU-B plus one cable AF).

Disk Drives

FDC 2-2 Dual Floppy Disk Drive. Single cabinet IBM 3741 compatible disk drives with power supply. Phase-locked loop.

FDC 2-1 Single Floppy Disk Drive. Single cabinet IBM 3741 compatible disk drive with power supply. Phase-locked loop.

FDC Floppy Disk. Single IBM 3741 compatible disk drive with power supply to expand FDC 2-1 to a 2-2.

PCS-80/25A & B. Dual PerSci single and double density floppy disk drives with power supply in cabinet.

PCS-80/34. Peripheral cabinet with power supply, one Shugart minifloppy and DIO interface.

PCS-80/26A & B. Peripheral cabinet with power supply, dual PerSci single and double density floppy disk drives, without DIO interface.

Terminal Systems

CRT-2480A Video Display/Keyboard Terminal. 12" CRT. 24 line. 80 characters per line. ASCII keyboard.

HCT-30A Printer/Keyboard. DECWRITER II Hard Copy Terminal with stand. 132 columns. 30 cps.

HCT-45A Printer/Keyboard. Hard Copy Terminal. 132 columns. 45 cps. HyType mechanism.

IKB-I Intelligent Keyboard. Microprocessor based intelligent keyboard with on-board ROM. Parallel and RS 232 interfaces. User programmable key functions. Upper and lower case ASCII encoded. Upper case only mode and direct scan mode.

MDM-300A Modem/Acoustic Coupler. 300 baud.

MDM-1200A Modem/Acoustic Coupler. 1200 baud.

18. Serial Printer PTR-45A.

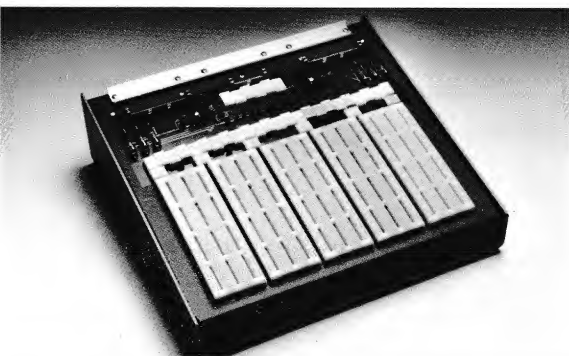
19. Impact Line Printer with tractor feed (PTR-300B).

20. Serial Mini Printer (AP-44).

21. Dual Floppy Disk Drive (FDC 2-2).

22. Video Display/Keyboard Terminal (CRT 2480A).

23.



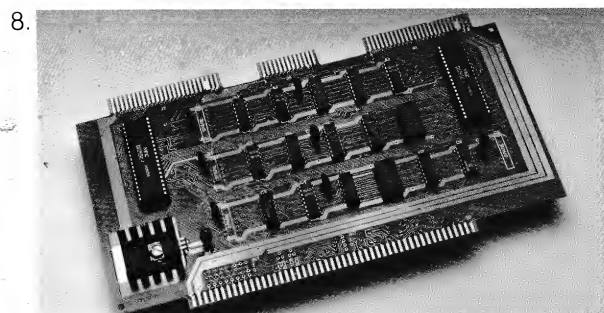
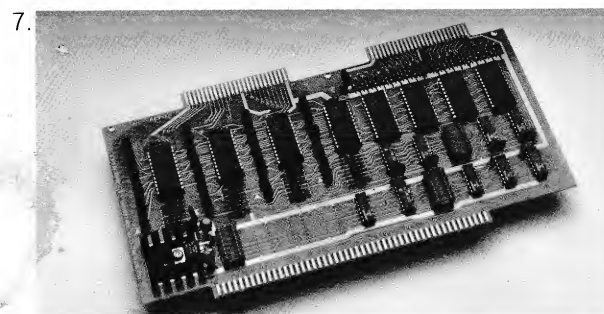
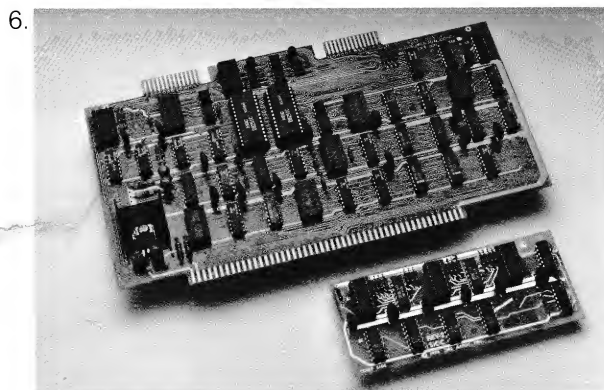
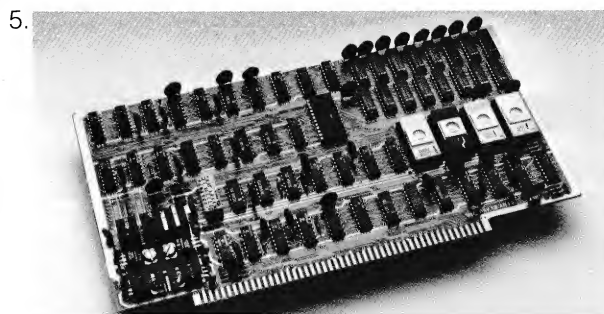
Connect to any S-100 bus computer for design of digital logic circuitry.

BBC-5 Breadboard Console. Used with PIO6-6 to provide six 8-bit parallel I/O ports. Provides access to 48 lines of TTL I/O. Power regulators. LED level indicators. Sockets for forty 16-pin I.C. plug-in devices.

BBC-3 Breadboard Console. 3 component strip version of BBC-5.

BBCM. Expansion module to convert 3 component strip breadboard console to 5 component strips.

23. Intelligent Breadboard Console (BBC-5).



• **Video I/O (VIO).** 24x80 CRT. Edit and data entry. Protected field. Character and line insert/delete. User selectable font up to 256 characters. Inverse video. Graphics characters. Firmware driver in ROM.

Serial I/O

Interfaces allow user to talk to any commercially available terminal devices, synchronous/asynchronous operation. 75 baud to 56 kilobaud transfer rates, user selectable.

SIO 2-1. One channel serial interface board.

SIO 2-2. Two channel serial interface board.

SIOM. One channel serial I/O expansion module (converts SIO 2-1 to two channel interface).

SIOC. Serial I/O clock piggyback board for SIO 2-1, 2-2. Provides for incremental baud selection for non-standard baud rates. (0.5 to 56KB)

Parallel I/O

Interfaces allow user to drive parallel devices. Boards equipped with status and data indicator lights.

PIO 4-1. 1 port parallel interface board.

PIO 4-4. 4 port parallel interface board. 4 separate 8-bit input and output parallel ports.

PIOM. 1 port parallel I/O expansion module (provides single port expansion of PIO 4-1 up to four ports).

PIO 6-3. 3 port parallel interface board. 8-bit ports software selectable for input or output.

PIO 6-6. 6 port parallel interface board. 8-bit ports software selectable for input or output.

PIO 6M. 3 port parallel I/O expansion module (provides expansion of PIO 6-3 to six ports).

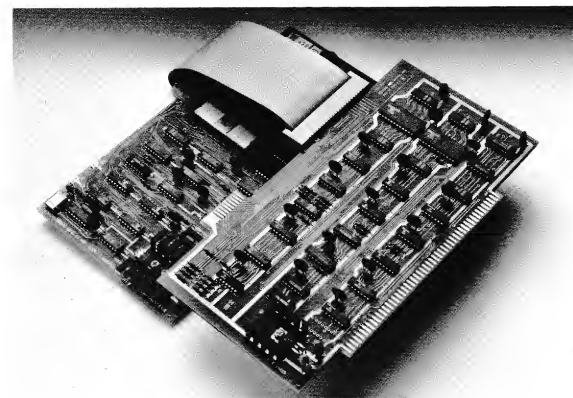
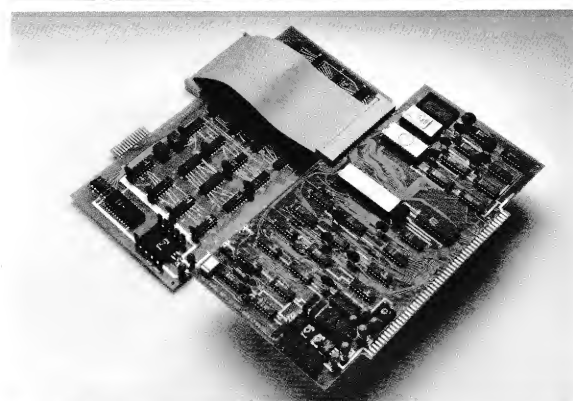
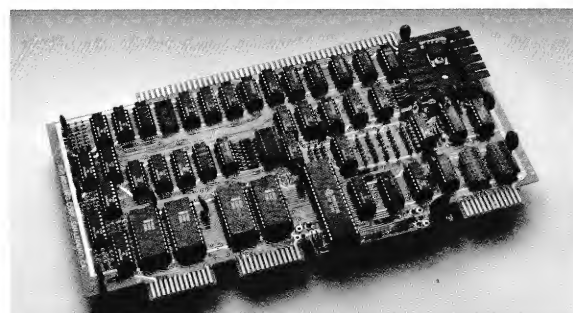
MIO. Single board interface with 1 dual cassette, 2 parallel, 1 serial and 1 control port.

LIF (Line Printer Interface). Two board set with direct memory access. Permits high speed line printers to be interrupt driven allowing spooling.

FIF (Floppy Disk Interface). Two board set with direct memory access. Can drive up to four drives of PCS-80/22 or 22 system.

DMA (Direct Memory Access). A special feature of LIF and FIF interfaces which allows concurrent operation of user programs and floppy disks or line printers.

DIO (Disk Interface). Can drive up to 4 standard floppy disks and 3 minifloppies simultaneously. Single or double density. Program controllable. For use with all PCS-80 disk drives, except PCS-80/21 or 22.



5. Video Interface (VIO).

6. Serial Interface (SIO 2-2) and Serial Clock (SIOC) boards.

7. 4 Port Parallel Interface (PIO 4-4) Board.

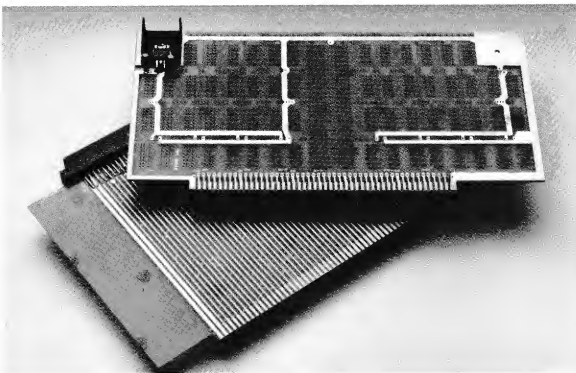
8. 6 Port Parallel Interface (PIO 6-6) Board.

9. Multiple Interface Board (MIO).

10. Line Printer Interface (LIF) with Direct Memory Access.

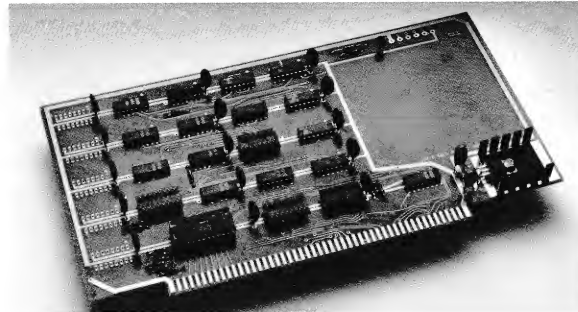
11. Floppy Disk Interface (FIF) with Direct Memory Access.

12.



EXT (Extender Board). Connects to mother board providing extension of a functional circuit board out of the card cage allowing access to circuits for servicing.

GP-88 (General Purpose Prototype Board). Provides space for up to thirty-one 16-pin plus three 24-pin or two 40-pin DIP



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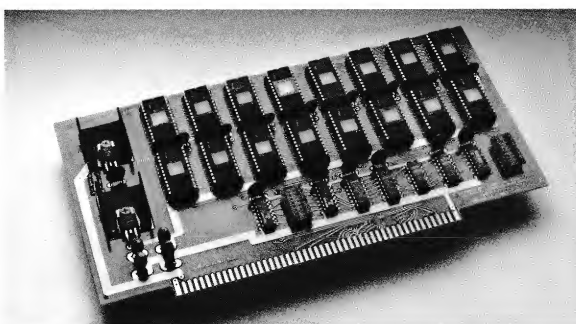
devices for development of custom circuits. Holes drilled for wire-wrap sockets.

PIC-8 (Priority Interrupt Board). Includes programmable interval clock. Provides up to 8 levels of vectored priority interrupt.

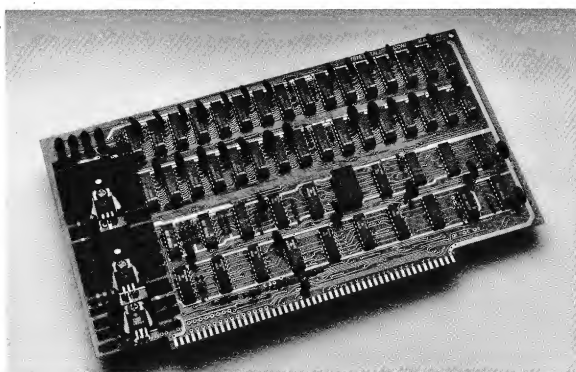
12. Extender Board (EXT) and General Purpose Prototype Board (GP-88).

13. Priority Interrupt Board (PIC-8).

14.

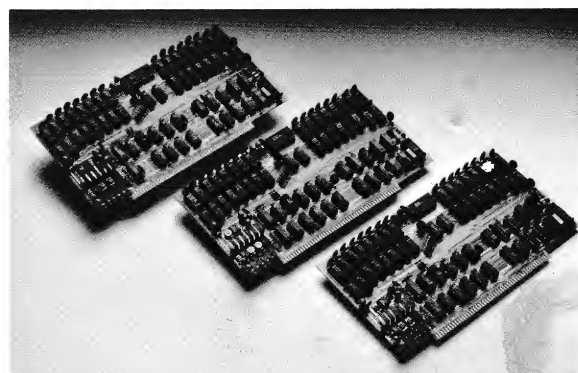


15.



PROM 4-4. 4K bytes of erasable PROM memory for non-volatile program storage.

PROM 4-512. 512 bytes of erasable PROM memory on 4K board.



16.

MM702-5. PROM memory chip set allows expansion of PROM 4-512 board up to 4K in 512 byte increments.

RAM 4A-4. 4K bytes of static random access memory. Programmable memory protect. LED access indicators. No "wait states."

16, 32 and 65K RAM Boards. Low power, dynamic random access memory boards. Paging option allows virtual memory addressing in 16K byte increments. S-100 compatible. "Hidden refresh" and no "wait states."

IMM (Intelligent Memory Manager). Memory control board manages up to 1 megabyte of memory in 16K byte increments. Mapping 16K blocks. Read and write protect. Fully vectored interrupts. Real "time of day" clocks. Other multi-user system and software security support.

14. Programmable Read Only Memory Board (PROM 4-4).

15. 4K Random Access Memory Board (RAM 4A-4).

16. 65, 32 and 16K Random Access Memory Boards.

Multiprocessing and Shared Memory

The IMSAI Shared Memory Facility is a multiple port memory system which enables up to 6 IMSAI mainframes to access the same physical block of memory.

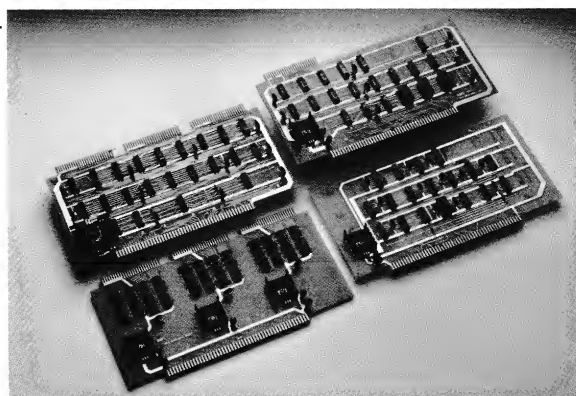
SMS (Shared Memory Switch Board). Provides 3 ports of switched bi-directional I/O between memory module and up to three CPU's.

SMC (Shared Memory Controller Board). Implements control and timing functions for Shared Memory Facility.

SMT (Shared Memory Terminator Board). Electrical line terminator board for connecting cables of processors within system.

SMB (Shared Memory Buffer Board). Connects to CPU's local bus to provide multiplexing.

17.



17. Shared Memory Facility (SMF).

PGM-1A Self-Contained System. Assembler, Editor, Debugger, Loader, Monitor. Furnished on paper tape with source listing. Also available on tape cassette and EPROM.

PGM-2A Tape Cassette Operating System. Enhanced PGM-1A for tape cassette. Available in TARBELL standard.

PGM-4A Paper Tape Bootstrap Loader. EPROM bootstrap loader for paper tape programs.

PGM-5A Tape Cassette Bootstrap Loader. EPROM bootstrap loader for tape cassette. Available in TARBELL standard.

PGM-6A Advanced Self-Contained System. Enhanced assembler, line editor and extensive debugging facilities. Furnished on paper tape with source listing. Also available on tape cassette and EPROM.

DOS-A Floppy Disk Operating System. Assembler, debugger, editor and utilities on diskette.

BASIC. Interactive or compiler with scientific and/or commercial features. (PRINT USING, 14-digit precision, random and sequential user disk files).

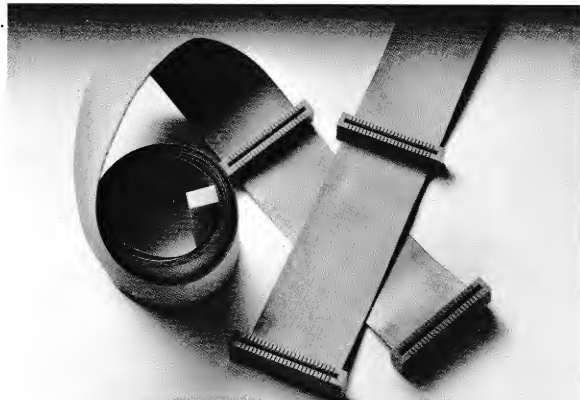
BASIC 4-A Language Interpreter. 4K high-level language. Available on paper tape, tape cassette and EPROM.

BASIC 8-A Language Interpreter. 8K high-level language, supporting most elements of the BASIC language.

BASIC 9-A Language Interpreter. 9K high-level language, includes BASIC 8-A features plus supports tape cassette source program storage.

FORTTRAN IV. Level 2 ANSI compiler. Generates assembler language in relocatable form. Linking loader/linkage editor included.

24.



Socket Sets

Socket sets for printed circuit boards facilitate installation and removal of individual semiconductor components promoting easier board maintenance. Socket sets are available for all IMSAI boards.

Cables

Cable A. 18" flat cable to carry signals from SIO and MIO interfaces to cabinet back frame.

Cable B. Flat cable which connects PIO 4-4 to rear of computer mainframe chassis for peripheral devices.

Cable C. 4½' cable to connect floppy disk drives, modems or terminals. 25-pin male miniature D connectors at both ends.

Cable D. Extension cable. Same as Cable C but with 1 male, 1 female connector.

Cable L. Video cable to connect VIO to cabinet back frame. Has male BNC connector.

Cable M. Cable set which connects MIO board to rear of computer mainframe chassis for cassette recorder. Has miniature phone jacks.

Cable R. 5' flat cable which connects 3 ports of the PIO 6-6 to Intelligent Breadboard System.

Cable S. 5' flat cable which connects data and address lines of PIO 6-6 board to Intelligent Breadboard System.

Cable AF. 18" flat cable to connect MPU-B to cabinet backframe.

24. Cables—male and female, single and dual ribbon flat cables.

IMSAI Owners Manuals

IMSAI. IMSAI 8080 Microcomputer System user manual.

VDP-80. IMSAI Video Data Processor (VDP-80) operators manual.

PCS-80. IMSAI Personal Computing System (PCS-80) user manual.

8048. IMSAI 8048 Control Computer user manual.

BBS. IMSAI Intelligent Breadboard user manual.

MULT. IMSAI Shared Memory Facility user manual.

LPTR. IMSAI Line Printer System user manual.

DOS-A. IMSAI CP/M (DOS-A) Floppy Disk Operating System user manual.

FDS. IMSAI Floppy Disk user manual.

DYRAM. IMSAI Dynamic RAM System user manual.

Books

INASM. *Intel 8080 Assembly Language Manual.* How to program the 8080 in assembly language.

INTEL. *Intel 8080 Microcomputer System User Manual.*

Complete specifications on Intel 8080A and all associated Intel memory and peripheral chips.

INVOLI. *Introduction To Microcomputers, Vol. I.* Basic microcomputer book.

INVOLII. *Introduction To Microcomputers, Vol. II.* Describes more than 20 microprocessor families.

TTL SU. *Supplement To TTL Handbook.* Adds more than 7400 series descriptions; 400 pages.

BASICP. *BASIC-Plus Language Manual.*

8080P. *8080 Programming For Logic Design.* How to implement digital and combinatorial logic using an 8080 microcomputer and assembly language.

WHAT. *What To Do After You Hit Return.* A book of computer games.

MY. *My Computer Likes Me When I Speak In BASIC.* An introduction to the BASIC language.

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